Department of Energy, Oak Ridge Operations
Oak Ridge National Laboratory Contract
Solicitation No. DE-RP05-99OR22725
Draft
Statement of Work
October 30, 1998

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C-1. Introduction

Oak Ridge National Laboratory is a multi-program Department of Energy (DOE) national laboratory and a Federally Funded Research and Development Center (FFRDC) established in accordance with the Federal Acquisition Regulation Subpart 35. Oak Ridge National Laboratory, subsequently referred to as the Laboratory, is an Office of Energy Research laboratory. The Laboratory performs work for all DOE programs including Energy Research, Energy Efficiency and Renewable Energy, Nuclear Energy, Nonproliferation and National Security, Fossil Energy, Environmental Management, and Defense Programs. The Laboratory mission is to conduct basic and applied research and development (R&D) to advance scientific knowledge, the nation's energy resources, environmental quality and to strengthen educational foundations and national economic competitiveness. DOE programs are carried out in partnership with academia, the private sector, other DOE national laboratories, the international scientific community, and other government agencies. The Contractor will advance the frontiers of science and technology through broad interdisciplinary R&D programs that answer fundamental questions, solve technical problems (both locally, regionally, nationally, and internationally), and develop and apply technologies to address societal needs.

This performance-based management contract reflects the Contractor's responsibility to develop and implement innovative approaches and adopt practices that foster continuous improvement in accomplishing the Laboratory mission. The Contractor will provide integrated line management of this diverse research institution, aligning multiple program scientific and technical missions with the appropriate resources and support to deliver world-class science in a cost effective manner. Integrated line management incorporates integrated safety management, cross organizational teamwork, and efficient work practices and applies them to programmatic and operational efforts.

C-2. Research and Development Capabilities and Resources

(a) In accomplishing the DOE mission, the Contractor shall maintain and advance the R&D capabilities that support all four DOE business lines: *Science and Technology, Energy Resources, Environmental Quality, and National Security.*

Science and Technology - The Laboratory has renowned capabilities in materials science and engineering and in neutron science. The Contractor shall manage the High Flux Isotope Reactor (HFIR) and the planned Spallation Neutron Source. These facilities will support user programs in neutron scattering, materials irradiation, and isotope production. Also, the Laboratory has significant capabilities in analytical and separations chemistry, computational sciences, environmental (including field experimental facilities) and social sciences, fusion science and technology, genetics, genomics, and biotechnology. The Laboratory has unique capabilities in nuclear physics and astrophysics with radioactive ion beams.

Energy Resources - The Laboratory has expert capabilities in: 1) biomass renewable energy feedstock and conversion technologies; 2) energy efficient technologies for buildings, industry, transportation, and utility end-use; 3) applied materials in support of energy efficient technologies, vehicle technologies, and fossil fuel use; and 4) nuclear technology and safety.

Environmental Quality - The Laboratory has extensive capabilities in environmental technology development, environmental restoration and waste management support, and health and environmental risk assessment.

National Security - The Laboratory supports this business area through the development of technologies that promote nonproliferation and international nuclear safety, and safe stockpile stewardship.

(b) The Laboratory has core competencies in the areas of neutron-based science and technology; computational science and advanced computing; biological and environmental sciences and technology; and advanced materials synthesis, processing, and characterization. In addition, the Laboratory has capabilities in instrumentation and measurement science and technology and in energy production and end-use technologies. The Laboratory conducts basic and applied research, development, and demonstration activities facilitating deployment of technologies both in U.S. and international markets through partnerships with the private sector.

The Contractor will direct these core competencies into creative research projects for DOE in partnership(s) with universities, other federal laboratories and the private sector. Opportunities to transfer technology into useful products and processes should be conducted in close cooperation with private sector sponsors.

The Contractor shall make it possible for the private sector to join in development/operation activities with the Laboratory to enhance teamwork and technology transfer.

(c) The Laboratory operates 15 designated national user facilities supporting diverse DOE mission areas. The 15 user facilities are: the Atomic Physics EN Tandem Accelerator, the Bioprocessing Research Facility, the Buildings Technology Center, the Californium User Facility, the Computational Center for Industrial Innovation, the High Flux Isotope Reactor, the High Temperature Materials Laboratory, the Holifield Radioactive Ion Beam Facility, the Metals Processing Laboratory, the Oak Ridge Electron Linear Accelerator, the Metrology Research and Development Laboratories, the Shared Research Equipment Program, the Oak Ridge National Environmental Research Park (NERP), the Mouse Genetics Research Facility, and the Surface Modification and Characterization Research Facility.

Over four thousand visiting scientists are guests of the Laboratory every year, and over five hundred agreements are in place to engage the 15 user facilities. Agreements are in place with other government agencies, industries, universities, and international participants.

(d) The Contractor shall effectively, efficiently, and safely operate the HFIR (e.g. produce neutron beams at least 90% of its scheduled operations each year). HFIR provides state-of-the-art facilities for neutron scattering and materials irradiation and is the world's leading source of elements heavier than plutonium for research, medicine, and industrial applications. HFIR is a light-water cooled and moderated reactor with a design power level of 100 megawatts and a normal operating power of 85 megawatts. HFIR supports production of radioactive elements that benefit approximately 800 customers in diverse areas like cancer radiation therapy, nondestructive inspection of explosives and aircraft, and as start-up sources for nuclear reactors.

(e) New user facilities pose a significant challenge in planning and scheduling experiments. For example, the Spallation Neutron Source (SNS) project when fully operational is estimated to have 1000-2000 user scientists per year in a wide variety of scientific investigations. Other facilities proposed at the Laboratory in the 5 to 10 year horizon include the Laboratory for Comparative and Functional Genomics, the Isotope Separator On-Line using the SNS accelerator to support the Nuclear Physics Program, the Advanced Materials Characterization Laboratory supporting the Basic Energy Sciences Program, the Large Scale Environmental Process Research supporting the Biological and Environmental Research Program, and the National Transportation Research Center.

The Contractor shall maintain effective operations of existing and planned user facilities, other appropriate facilities, and provide effective customer service to

user clients. The Contractor shall implement DOE mission objectives to ensure user facilities are user friendly, readily available, and can operate within conditions requested by user clients.

(f) The Contractor shall manage and maintain government-owned buildings and facilities at the Laboratory site and the NERP, together with the utilities and appurtenances thereto. The Contractor is also responsible for certain buildings at the Y-12 Plant which house major facilities and equipment in support of ORNL programs. In addition, some of the facilities on the Laboratory site are managed by the DOE-Oak Ridge Operations (ORO) Environmental Management, Management and Integration prime contractor.

(g) The Contractor shall manage the resources and capabilities of the laboratory and provide leadership for this scientific institution. The Contractor will effectively and efficiently direct the day-to-day management of the Laboratory and proficiently link scientific/engineering capabilities to accomplish DOE's objectives. Providing leadership in methods of integrated management to ensure inter-laboratory team building and intra-laboratory cooperation while supplying a safe working environment is essential. Effective line management integrates safety management, cross organizational teamwork, and efficient work practices and applies them to programmatic and operational efforts. The Contractor is charged with maintaining and enhancing the intellectual resource base in order to avoid erosion of the scientific and engineering foundations at the Laboratory. The Contractor is also responsible for the employment of all personnel engaged in the statement of work (SOW) efforts and for the training of its personnel.

C-3. Mission Related Partnerships

The Contractor shall maintain and enhance existing partnerships and develop new technology partnership activities in support of the DOE mission. Mechanisms for partnerships include cooperative research and development agreements, direct assistance programs, employee loan programs, user facility agreements, memoranda of cooperation, memoranda of understanding, memoranda of agreement, license agreements, and other arrangements as approved by DOE in which research and development resources are leveraged with private sector partners. Efforts to develop broad based partnerships with academic research institutions, other agencies, other DOE laboratories, the international scientific community, and with the private sector are essential to the long term viability of the Laboratory. Accomplishments in creating these partnerships may expand beyond cooperative research and development agreements to include non-traditional methods (e.g., co-location of the private sector in or near research areas at the ORNL site). Neutron science, isotope production, functional genomics, and computational research programs provide opportunities for partnerships with the private sector, universities, and other national laboratories to advance scientific frontiers and enhance technology

development. Facilities and instrumentation may be developed with applications in the pharmaceutical industry, clinical medicine, environmental remediation, and other areas.

C-4. Other Activities

(a) The Contractor shall manage facilities and resources to optimize the effectiveness of operations in support of the DOE mission. The Contractor shall maintain critical skill mixes and resources at the Laboratory. The Contractor should perform make/buy analyses on work functions that may be inefficient and determine options for improvement. The Contractor shall examine Laboratory operations to consolidate work efforts, eliminate duplication of scientific effort, identify underutilized facilities, and reduce operational costs. Site planning activities shall be conducted by the Contractor proactively addressing concerns of DOE, regulatory agencies, and stakeholder groups.

(b) Project management - The Contractor shall manage facility engineering and construction efforts in a manner that allows completion of project objectives in a safe and environmentally sound manner within the planned schedule and cost baselines.

The Contractor is expected to achieve all project deliverables associated with the SNS project. Construction will be initiated during FY 1999 with groundbreaking in FY 2000; field activities will continue for five years until the facility is ready for operation. Construction of the SNS within the established schedule and cost baseline is required.

The High Flux Isotope Reactor (HFIR) upgrade project includes the development of a cold source of neutrons, new neutron scattering instruments, new thermal guides, and replacement of the beryllium reflector. The upgrade began in FY 1996 and is to be completed by mid-FY2001. The Contractor shall complete this project on the established schedule.

(c) Oak Ridge Reservation Management - The Contractor shall conduct land use planning and land management services for the DOE Oak Ridge Reservation, consisting of 34,545 acres of federally-owned land, except for areas assigned to other contractors or parties as identified in the Facility Information Management System (FIMS) database. The Contractor's responsibilities include land and facility planning for the Laboratory site, management of the National Environmental Research Park (NERP), and integrating reservation management activities between DOE, contractors, and other parties.

(d) In addition to the services specifically described in other provisions of this SOW, the Contractor shall perform services as DOE and the Contractor shall agree in

writing that will be performed from time to time under this contract at Oak Ridge or elsewhere, as follows:

(1) Services incidental or related to the services described in other provisions of this SOW;

(2) Services, using existing facilities and capabilities, for other federal agencies and nonfederal entities in accordance with policies and procedures established by DOE;

(3) Services, using existing or enhanced facilities and capabilities, for the Nuclear Regulatory Commission (NRC), under agency agreements between NRC and DOE;

(4) Services in support of ORO programs when the work involved has been determined by DOE to be within the unique capabilities of the Contractor or when the work involved has been determined by DOE to be within the special scientific and technical capabilities of the Contractor and the urgent need for the services precludes acquiring them from another source.

C-5. Performance Expectations

This contract is a management and operating contract arrangement that is performance based. Overall high level performance expectations are categorized in the following areas: 1) Science and Technology; 2) Leadership; 3) Environment, Safety, and Health; 4) Infrastructure; 5) Business Operations; and 6) Stakeholder Relations.

Science and technology expectations placed on the contractor emphasize quality of research conducted and accomplishments in developing leading edge enabling technologies to support the DOE mission. The Contractor is expected to provide leadership that ensures excellence, relevance, and stewardship in all Laboratory operations. The Contractor will integrate environment, safety, and health into research, operations, and management practices ensuring protection of the environment and protection of the workforce and public. The Contractor will also maintain the infrastructure required to support operations of aging facilities in a safe, reliable, environmentally responsible, and cost effective manner. The Contractor will use efficient and effective corporate management systems and approaches to guide decision making, streamline and improve operations, align resources and reduce costs, and improve the delivery of products and services. The Contractor will work with customers, stakeholders, and neighbors in an open, frank, and constructive manner. Success in partnering with industry and ultimate application of the scientific information and/or technology to solve DOE or broad public issues is essential.

In partnership with DOE, the Contractor will be expected to develop and adhere with specific performance objectives to ensure the Laboratory achieves the six performance expectations producing quantitative results. Examples of objectives include achieving maximum benefits from re-engineering efforts (e.g. success in cost effective management through streamlining efforts and subcontracting functions that are service oriented), and optimizing application of DOE developed and licensed technologies. A number of measures will be applied in assessing the performance of the Contractor.

C-6. Vision of the 21st Century Laboratory

DOE is committed to a strategy that continues and enhances the record of scientific accomplishment of its system of national laboratories into the 21st Century. This strategy must maintain the preeminence of the laboratories in DOE mission related science and technology as well as facilitate contributions to improving the lives and health of all peoples. More than ever, in the 21st Century the DOE national laboratories will make it possible to carry out large-scale fundamental research efforts, especially those which require complex, expensive user facilities. The Department has a stewardship role in operating such facilities for the benefit of the entire research enterprise.

DOE has a tradition of developing and executing a balanced research portfolio in collaboration with academic and industrial partners. The Department recognizes the value of applying this same collaborative approach to developing a contractual framework for these unique research institutions suited to the demands of the 21st century.

While meeting current DOE expectations for the management and operation of the Laboratory, the Contractor is expected to develop a laboratory that will best serve the long term strategic vision of DOE. Based on discussions and any specific guidance from DOE, the Contractor shall deliver a proposal to DOE (at no cost to the government) incorporating their novel approach to manage the Laboratory as a preeminent 21st Century research institution. The proposal is due by September 30, 2002, and will be part of the information used to determine if a contract extension is warranted at the end of the 5 ½-year base contract period. Implementation of any aspects of the proposal may occur under the base contract if approved by DOE.